Innovative Instrumentation Approaches for Monitoring and Control Applications

Completed Technology Project (2016 - 2017)

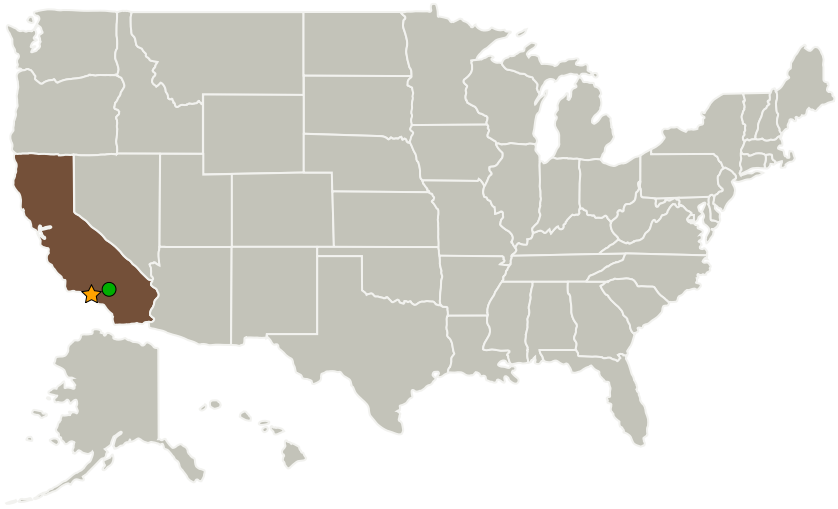
Project Introduction

Advanced sensors (e.g., FOSS and LMSG) will be investigated through a sequence of quasi-static load tests on representative "simple" soft-good test article(s) (i.e., a piece of fabric). The range of validity of the proposed sensors will be assessed. The experimental results will be quantified and compared with photogrammetry measurements. A guideline on the feasibility of these sensors will be established based on the proposed study. Upon successful validation, the proposed advanced sensors may potentially be utilized for monitoring and control applications for NASA/JPL projects such as Mars 2020, missions with EDL capability, as well as integration into dynamics testing procedures at JPL such as random vibration, acoustics, and shock.

Anticipated Benefits

The goal of this task is to assess the viability of using advanced sensing technologies to measure strain on material with low modulus of elasticity such as soft-goods (e.g., canopy of a parachute).

Primary U.S. Work Locations and Key Partners



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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Jet Propulsion Laboratory (JPL)

Responsible Program:

Center Innovation Fund: JPL CIF

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Organizations Performing Work	Role	Type	Location
★Jet Propulsion Laboratory(JPL)	Lead Organization	NASA Center	Pasadena, California
●Armstrong Flight Research Center(AFRC)	Supporting Organization	NASA Center	Edwards, California

Primary U.S. Work Locations
California

Project Management

Program Director:

Michael R Lapointe

Program Manager:

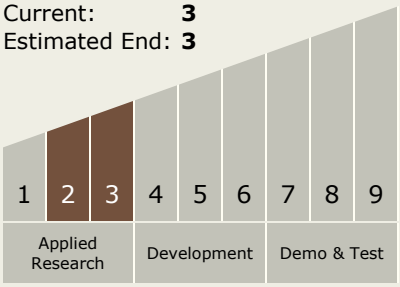
Fred Y Hadaegh

Principal Investigator:

Armen Derkevorkian

Technology Maturity (TRL)

Start: **2**
Current: **3**
Estimated End: **3**



Technology Areas

Primary:

- TX13 Ground, Test, and Surface Systems
  - TX13.2 Test and Qualification
    - TX13.2.7 Test Instruments and Sensors

Target Destination

Foundational Knowledge